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Risk Analysis of Crane Accidents

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Gulf of Mexico OCS Regional Office

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Minerals Management Service
Attn: Public Information Unit OPS-3-4
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394
(504) 736-2519

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RISK ANALYSIS OF CRANE ACCIDENTS

PURPOSE

This is a synopsis containing general information. The purpose of this analysis is to evaluate risks associated with the operation of cranes and related equipment on oil and gas drilling and production facilities in the Gulf of Mexico OCS. The data presented was obtained from the OCS Gulf of Mexico Accident Events File and the accident files maintained by the Standards and Orders Unit of Rules and Production.

SCOPE

The accidents extracted from the referenced files occurred between January 1, 1981 and June 30, 1983. This analysis was based on these historical records, and the results obtained are purely objective.

INTRODUCTION

In accordance with a Memorandum of Understanding (MOU) between the U.S. Coast Guard (USCG) and the Minerals Management Service (MMS) effective December 18, 1980, the USCG has the responsibility for establishing requirements, as necessary, for cranes, booms, or other material-handling equipment located on all OCS facilities. In addition, MMS OCS Order No. 8, Section 5, effective October 1, 1976, required that cranes be operated and maintained in accordance with the provision of API RP 2D, 'Operation and Maintenance of Offshore Cranes', October 1972, or subsequent revisions approved for use. This Department of the Interior requirement is now contained in OCS Order No. 5, Section 7.

NARRATIVE

Between January 1, 1971, and June 30, 1983, there were a total of 50 reported crane-related accidents. These accidents have resulted in a number of undesirable events including injuries fatalities, fires, pollution spills, and equipment damage. To analyze these accidents, a number of tables have been developed to help determine what similarities could be noted among the data. In this way, recommendations can be made from similar occurrences, hopefully, to reduce the risks associated with crane operations.

Most notable is the number of injuries and fatalities associated with the 50 crane accidents (Table 1). The Summary of Accidents (see Pages 11 to 16) shows that there was either an injury or a fatality in 40 of the 50 reported accident events. This demonstrates the high degree of risks to human life associated with crane operations. It is also significant that approximately 70 percent of those injured were persons performing roustabout type duties. These 50 reported crane-related accidents resulted in 37 fatalities and 26 injuries. On December 8, 1977, 17 of these 37 fatalities and 2 of the 26 injuries occurred when a helicopter hit a crane boom cable. .

Table 1

CAUSES OF FATALITIES AND INJURIES

Cause	Fatalities	Injuries
Struck by Moving Equipment	10	7
Struck by Falling Equipment	9	14
Fire	0	3
Helicopter Crash	17	2
Crane Ladder Failed	1	0
Total	37	26

Some other statistics concerning these fatalities or injuries during this time (excluding the helicopter accident) follows:

– Type of job that was associated with the most fatalities	Person attaching or unhooking load (55%)
– Average age of the persons in this category that were fatalities	30 1/2 years
– Average amount of offshore experience for these persons who were fatalities	4.2 years*
– Type of job that was associated with the most injuries	Person attaching or unhooking load (58%)
– Average age of the persons injured in this category	30 3/4 years
– Average amount of offshore experience for these persons who were injured	2.4 years
– Average age of all personnel who were fatalities	32 1/2 years
– Average age of all personnel who were injured	31 1/2 years
– Average amount of experience of those who were fatalities	4 3/4 years
– Average amount of experience of those who were injured	4 years

– Work categories of fatalities or injuries (in descending order):

	FATALITY	INJURY
Person attaching or unhooking load	11	8
Crane Operator	5	6
Welder/Welder's Helper	2	3
Maintenance Personnel	1	5
Boat Hand	1	1
Electrician	0	1

NOTE: The above number of fatalities and injuries do not include the helicopter accident that occurred on December 8, 1977, in which 17 fatalities and 2 injuries occurred.

*One of the persons attaching or unhooking the load who became a fatality had 30 years of offshore experience and another one had 20 years. If we arbitrarily exclude them in establishing the average amount of offshore experience for all persons attaching or unhooking the load who became fatalities in crane-related accidents, the number decreases dramatically from 4.2 years to less than 1 year.

Attempts were made to determine the average amount of operating experience for all the crane operators in the Gulf of Mexico OCS, but no such information was available.

The major probable contributing cause of crane accidents was 'Human Error - Unsafe Procedure' in 19 incidents, followed by 'Mechanical Failure', in 15 incidents, and then 'Human Error - Crane Overload', in 11 incidents (Table 2).

Table 2

PROBABLE CONTRIBUTING CAUSES

Cause	Number of Events
Mechanical Failure	15
Gas Starter	4
Human Error	
Unsafe Procedure	19
Error in Judgment	5
Crane Overload	11
Improper Ventilation	1
TOTAL	55

Note: In some instances, an event had more than one cause.

The person in error in 58 percent (29/50) of the incidents was the crane operator (Table 3). In most of these incidents, the crane operator was unable to see what was happening and had no communication with the person supposedly directing the lift. In 4 of the 29 incidents, the crane operator was not watching what he was doing. In one, the crane operator did not follow standard operating procedures which resulted in the helicopter accident mentioned earlier.

Table 3

PERSONNEL IN ERROR

Type	Number
Crane Operator	29
Roustabout/Helper	6
Deck Hand	1
Boat Skipper	1
Rigger	3
Tool Pusher	1
Flagman	1

NOTE: Personnel were not in error in every accident event. However, there were some accident events in which more than one person was in error.

Another 22 percent (11/50) of the incidents were apparently caused by the person(s) who was helping handle the load (roustabout, rigger, flagman, etc.), (Table 3). This employee error occurred for the following reasons: the person had not rigged the load correctly, the person was in the wrong location when the load was lifted/lowered, there was no coordination with the crane operator, or the person was not following standard operating procedures in performing his duties. The boat skipper or deck hand was in error in 4 percent (2/50) of the incidents (Table 3).

The requirement set forth in OCS Order No. 8, Section 5, dated January 1977, which states that cranes shall be operated and maintained in accordance with the provisions of API RP 2D, apparently had no effect on the number of crane accidents occurring each year since 1977 (Table 4).

Table 4

CRANE ACCIDENTS PER YEAR

Year	No. Wells Drilled	No. Major Complexes	Drilling Accidents	Production Accidents	Total Accidents
1971	806	720	1	1	2
1972	839	797	0	1	1
1973	816	854	0	1	1
1974	808	887	2	1	3
1975	863	951	1	1	2
1976	1023	1020	5	2	7
1977	1156	1092	4	6	10
1978	1097	1195	6	2	8
1979	1097	1276	2	5	7
1980	1063	1361	0	1	1
1981	1051	1446	1	3	4
1982	1069	1529	1	2	3
1983*	472	1552	0	1	1
Total			23	27	50

*Through June 1983

Prior to 1976, crane accidents were occurring at a rate of 1.8 per year. Since 1976, they have averaged 5.5 per year. This increase was observed from 1976 through 1979. The number of wells completed averaged 365 per year from 1971 - 1976 as compared to 501 per year from 1976 - 1979. This increase in well completion activity could have possibly attributed to the average increase of accidents since 1976. As mentioned earlier, pollution spills, equipment/platform damage, and fires resulted from crane accidents (Table 5).

Table 5

EFFECTS OF CRANE ACCIDENT EVENTS

Event	Number
Equipment Damage	4
Fire	6
Pollution Spill	4
Injury	26
Fatality	37

Any accident which occurred as a direct result of the start-up operation or maintenance of a crane was included in this analysis. Of the six crane accidents which involved fires, four were caused by gas starters. These four accidents were therefore considered to be crane-related and are included in this study. Gas starter accidents on all types of equipment will be the subject of a future Risk Analysis report.

A significant number of crane accidents have involved the failure of crane-related equipment. Of the 50 accidents, 21 were the result of a portion of the crane or its auxiliary equipment failing (Table 6).

Table 6

CLASSIFICATION OF EVENTS WHERE CRANE OR LIFTING EQUIPMENT FAILED

Part Failing	Number
Pedestal	10
Boom	4
Lifting Line and Connector	7
Total	21

There were 10 accidents that involved failure of the crane's pedestal. These problems seemed to be caused by the crane being overloaded or the lack of maintenance of the pedestal. There were four accident events relating to the failure of the boom, all of which seem to be the result of overloading the crane. There were seven accidents caused by either the lifting lines and/or the connectors breaking. In these cases, four of the incidents were the result of mechanical failures (which could be attributed to poor maintenance); and the other three failures were caused by the operator performing an unsafe act.

CONCLUSIONS

On the basis of the summaries of the data and the Appendix, the following conclusions have been made:

1. Accidents involving cranes have caused a significant number of injuries and fatalities.

2. Persons hooking onto or unhooking a load are the personnel who are more likely to be injured or become a fatality as a result of a crane accident.

3. Some type of employee negligence or error has been the major contributing cause of crane accidents including those involving injuries and fatalities.

4. A significant number of crane accidents have been caused by the crane being overloaded.

5. Mechanical failures have occurred mainly as a result of several causes including overloading, lack of proper maintenance, and the improper use of equipment.

6. On the basis of historical data, crane accidents will continue to occur at a rate of approximately four per year.

RECOMMENDATIONS

It is obvious from the data reviewed that there is a definite need to further promote crane safety in order to reduce the risks to human life and property when cranes are operated. This is especially true in the area of training because the major cause of crane accidents has been some type of employee negligence or error in judgment.

As stated in the Introduction, the USCG has the responsibility for establishing requirements as necessary, for the cranes, booms, or the material handling equipment located on all OCS facilities. Any recommendations made as a result of this study should be forwarded to them for their consideration. It has recently come to the attention of the authors that the USCG is now introducing proposed regulations in the area of personnel safety and crane operations. These proposals, if issued as regulations and complied with, should significantly contribute to minimizing the risk to human life and property associated with crane operations.

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SUMMARY OF ACCIDENTS

(Derived from the OCS Accidents Events File)

DATE	DISTRICT	TYPE OPERATION	OPERATOR	LOCATION	PROBABLE CONTRIBUTING CAUSE	RESULTS OF EVENT
04-16-71	Houma	Drilling (Sea Drilling Corp.)	Amoco	SS 219 B	Human Error - Unsafe Procedure (Crane Operator)	Fatality (1)
12-17-71	Houma	Production	Conoco	GI 47 A	Human Error - Error in Judgment (Crane Operator)	Pollution Spill
01-01-72	Houma	Production	Gulf	ST 135 M	Mechanical Failure	Fatality (1)
09-25-73	Houma	Production	Amoco	SS 219 B	Human Error - Error in Judgment (Crane Operator)	Pollution Spill
08-01-74	Metairie	Drilling (ODECO, Inc.)	ODECO	SP 52	Human Error - Unsafe Procedure (Crane Operator)	Fatality (1)
11-08-74	Lafayette	Drilling (Cactus International, Inc.)	Marathon	EI 349 No. 1	Human Error - Crane Overload (Crane Operator) Mechanical Failure	Injury (1) Fatality (1)
11-22-74	Lafayette	Production	Conoco	SM 261 A	Mechanical Failure	Pollution Spill
07-23-75	Houma	Drilling (Shell Offshore, Inc.)	Shell	ST 26 E	Human Error - Unsafe Procedure (Crane Operator and Roustabout)	Fatality (1)

DATE	DISTRICT	TYPE OPERATION	OPERATOR	LOCATION	PROBABLE CONTRIBUTING CAUSE	RESULTS OF EVENT
12-09-75	Houma	Production	Union	SS 253 D	Human Error - Unsafe Procedure (Crane Operator)	Fatality (1)
01-07-76	Metairie	Drilling (Santa Fe Drilling Co.)	American Petroleum	MC 68	Human Error - Crane Overload (Crane Operator)	Fatality (1)
03-09-76	Metairie	Drilling (Western Oceanic)	Exxon	MC 268	Human Error - Error in Judgment (Flagman/Roustabout)	Fatality (1)
05-14-76	Lake Charles	Drilling (Pool Offshore Co.)	Shell	WC 565 A	Mechanical Failure	Fatality (1)
08-12-76	Houma	Production	Conoco	GI 48 E	Gas Starter	Fire
10-23-76	Houma	Drilling (Sea Drilling Corp.)	Gulf	ST 37 A	Human Error - Unsafe Procedure (Crane Operator)	Fatality (1)
11-13-76	Metairie	Production	Conoco	WD 70 N	Gas Starter	Fire
11-27-76	Metairie	Drilling (Salen Protexa Drilling Co.)	Conoco	WD 45 A	Human Error - Error in Judgment (Crane Operator)	Fatality (1)
01-05-77	Houma	Production	Gulf	ST 130 A	Mechanical Failure	Injury (1)
01-25-77	Houma	Production	Gulf	ST 130 D	Human Error - Unsafe Procedure (Crane Operator and Snubbing Unit Helper)	Injury (1)

DATE	DISTRICT	TYPE OPERATION	OPERATOR	LOCATION	PROBABLE CONTRIBUTING CAUSE	RESULTS OF EVENT
02-10-77	Metairie	Drilling (Booker Drilling Co., Inc.)	Marathon	MP 306 E	Human Error - Crane Overload (Crane Operator and Tool Pusher)	Equipment Damage
05-11-77	Houma	Production	ODECO	ST 86 A	Mechanical Failure	Injury (1)
06-24-77	Lake Charles	Drilling (Rowan Companies, Inc.)	Conoco	WC 222 I	Human Error - Unsafe Procedure (Rigger)	Fatality (1)
07-14-77	Lake Charles	Production	General American	WC 45 A	Human Error - Crane Overload (Crane Operator) Mechanical Failure	Equipment Damage
07-15-77	Metairie	Production	Gulf	WD 117 C	Gas Starter	Injury (1) Fire
08-27-77	Houma	Drilling (Cyclops Drilling Co.)	Gulf	ST 36 B	Human Error - Unsafe Procedure (Crane Operator and Roustabout)	Injury (1)
12-08-77	Lafayette	Drilling (Mission Drilling Expl., Inc.)	Pennzoil	SM 128 A	Human Error - Unsafe Procedure (Crane Operator)	Injuries (2) Fatalities (17)
12-11-77	Lafayette	Production	Shell	SM 132 A	Human Error - Error in Judgment (Crane Operator)	Fatality (1)

DATE	DISTRICT	TYPE OPERATION	OPERATOR	LOCATION	PROBABLE CONTRIBUTING CAUSE	RESULTS OF EVENT
03-17-78	Houma	Drilling (Pool Offshore Co.)	Gulf	ST 177 B	Human Error - Crane Overload (Crane Operator)	Injury (2)
04-08-78	Houma	Drilling (Dolphin Titan International Inc.)	Gulf	ST 35 D	Human Error - Unsafe Procedure (Roustabout/ Pumpman)	Injury (1)
04-24-78	Lafayette	Drilling (Pool Offshore Co.)	Conoco	SM 108 G	Human Error - Unsafe Procedure (Crane Operator and Boat Skipper)	Fatality (1)
05-03-78	Lake Charles	Production	Conoco	WC 194 F	Improper Ventilation	Fire Injury (1)
06-28-78	Houma	Drilling (Pool Offshore Co.)	CNG	SS 271 B	Human Error - Unsafe Procedure (Crane Operator)	Injury (1) Fatality (1)
11-19-78	Houma	Drilling (Reading and Bates Offshore Drilling Co.)	CNG	SS 247 F	Human Error - Unsafe Procedure (Roustabout)	Injury (1)
12-10-78	Metairie	Drilling (CRC Mallard Well Service, Inc.)	ARCO	SP 60 B	Human Error - Crane Overload (Crane Operator) Mechanical Failure	Injury (1)
12-18-78	Lafayette	Production	Marathon	EI 57 A	Human Error - Crane Overload (Crane Operator) Mechanical Failure	Injury (1)

DATE	DISTRICT	TYPE OPERATION	OPERATOR	LOCATION	PROBABLE CONTRIBUTING CAUSE	RESULTS OF EVENT
02-04-79	Lafayette	Production	Amoco	EI 273 B	Mechanical Failure	Injury (1)
03-28-79	Lafayette	Production	Texaco	EI 275 A	Human Error - Unsafe Procedure (Rigger)	Fire Injury (1)
04-21-79	Lafayette	Drilling (Marlin Drilling Co., Inc.)	Conoco	SM 136 B	Human Error - Unsafe Procedure (Roustabout/ Floorhand)	Injury (1)
07-09-79	Texas	Production	CNG	HI A-571 A	Mechanical Failure	Fatality (1)
07-29-79	Lake Charles	Production	Tenneco	VR 217 A	Human Error - Crane Overload (Crane Operator) Mechanical Failure	Fatality (1)
10-13-79	Texas	Drilling (Service Equipment and Engineering, Inc.)	Transocean	MI 665	Human Error - Crane Overload (Crane Operator)	Fatality (1)
12-19-79	Lake Charles	Production	Superior	VR 76 B	Mechanical Failure	Equipment Damage
06-04-80	Metairie	Production	Conoco	WD 58 A	Gas Starter	Fire Injury (1)
03-13-81	Houma	Production	Gulf	ST 134 S	Human Error - Crane Overload (Crane Operator)	Injury (1)
03-19-81	Metairie	Production	Conoco	WD 70 L	Mechanical Failure	Equipment Damage

DATE	DISTRICT	TYPE OPERATION	OPERATOR	LOCATION	PROBABLE CONTRIBUTING CAUSE	RESULTS OF EVENT
04-08-81	Houma	Drilling (CRC Mallard Well Service, Inc.)	Exxon	ST 66 D	Mechanical Failure	Injury (2)
04-21-81	Lafayette	Production	Placid	EI 199 A	Human Error - Unsafe Procedure (Crane Operator)	Injury (1)
02-11-82	Houma	Production	Chevron	ST 63 A	Human Error - Unsafe Procedure (Crane Operator)	Injury (1) Fatality (1)
08-02-82	Texas	Production	Cities Service	MI 526	Human Error - Unsafe Procedure (Crane Operator and Deckhand)	Fatality (1)
11-03-82	Lake Charles	Drilling (ODECO, Inc.)	Shell	SA 12	Human Error - Unsafe Procedure (Crane Operator and Rigger	Injury (1)
04-24-83	Lake Charles	Production	Amoco	EC 261 A	Human Error - Crane Overload (Crane Operator)	Pollution Spill

APPENDIX

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DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
04-16-71	Amoco/Sea Drilling Corp.	SS 219 B	A fatality occurred as result of unloading drill pipe from a workboat onto platform with a 30-ton crane. The employee stepped out of the cab to clearly see signals from man on the boat. When reaching back into cab to pull the pick-up line clutch, he pulled fast-line clutch instead; and caused fast line weight ball to be pulled into boom sheave, severing the line and flinging the ball directly at him. The ball hit him on the head causing the fatal injury.
12-17-71	Conoco	GI 47 A	Needle valve on separator outlet line knocked off by crane resulting in 3 barrels of oil spilled.
01-01-72	Gulf	ST I35 M	The kingpin housing on the crane ruptured while lifting the Halliburton Unit. The crane fell overboard trapping operator, causing a fatality.
09-25-73	Amoco	SS 219 B	Crane operator was picking up chicksan line when it lodged under the drain valve on the test tank. The valve broke out of the bushing connecting it to the tank resulting in an oil spill of 36 barrels.
08-01-74	ODECO/ ODECO,Inc.	SP 52	While pulling the No. 5 anchor, the No. 6 pennant line was lying across the No. 5 chain. The slack was pulled out of the No. 6 pennant line. The crane fast line was tied into the eye of the No. 6 pennant and picked up as high as possible. The pennant line was tied to the barge, with a chain hitch, and then slacked down and coiled upon the deck. The pennant line was then tied to the fast line with another chain hitch. The crane operator picked up so the pennant line could be untied from the barge and another pull made. The chain hitch was pulled up

CRANE RELATED ACCIDENTS

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
			under the handrail and the hitch slipped on the pennant line. The pennant line started running and when it came to the end of the slack where it was tied to the barge, this chain broke. The employee was between two oxygen racks at the edge of the barge where he was going to untie the chain. The pennant came down and pinned the employee. The line ran across him and the eye hit him in the back, causing fatal injury.
11-08-74	Marathon/ Cactus International, Inc.	EI 349 No. 1	Crane operator was offloading equipment from rig to boat and was booming down when boom started to fall. Operator moved the boom clutch to neutral to stop boom. Brake stopped boom and weight of load caused boom line to break, allowing boom to free fall and crash against side of platform. The cable from the boom line and the ball on fast line fell hitting one man on head causing fatal injury to him and critically injuring a second man.
11-22-74	Conoco	SM 261 A	A crane line clamp malfunctioned allowing the crane to drop a tank which ruptured when it hit the water. Resulted in 12 barrels of oil spilled.
07-23-75	Shell/Shell	ST 26 E	The crew had completed offloading some drill collars and a core barrel and were in the process of securing the pipe spreader bar to a bracket on the platform. Apparently due to difficulty experienced by the roustabout in disconnecting the crane hoisting cable hook from the tool, the fast line hoisting cable was connected. During subsequent efforts to disconnect the tool, the crane operator's hand or foot slipped off the controls of the fast line and allowed the line and ball to fall, striking the roustabout in the head and fatally injuring him.

CRANE RELATED ACCIDENTS

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
12-09-75	Union	SS 253 D	Crane was lifting quarters building from the motor vessel to the platform. Roustabout tied on lift lines and climbed down in back of building (blind spot). While starting to lift, roustabout was pinned between quarters building and rear of boat cabin causing fatal injury.
01-07-76	American Petroleum Exploration/ Santa Fe Drilling Co.	MC 68	The starboard crane on the rig was unloading tools from a workboat when the work basket skidded on the workboat deck and hooked one of the bits. This caused the crane to break off of its pedestal and fall overboard with the crane operator inside, causing fatal injury.
03-09-76	Exxon/ Western Oceanic	MC 268	During drilling operations aboard the drill ship, an employee was removing pad-eyes from a joint of 30-inch casing. As another joint started in the 'V' door, a pad-eye hung on the 'V' door entrance. The crane operator was signaled by the flagman to raise the casing, but when it had been raised the few inches required to clear the 'V' door, the casing swung onto the rig floor and pinned the employee at the rotary (between the joint standing in the rotary and the swinging joint) resulting in a fatal injury.
05-14-76	Shell/Pool Offshore Co.	WC 565 A	A casing tool was being offloaded from a boat to a platform using the platform crane. The crane hoisting cable had been attached to a chain which had been welded to the casing tool. The chain broke while the tool, a flat piece of plate steel weighing 700 pounds, was suspended in the air. The tool fell, striking the boat skipper, fatally injuring him.

CRANE RELATED ACCIDENTS

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
08-12-76	Conoco	GI 48 E	An accumulation of gas from a leaking starter valve in a crane was ignited by a backfire from the exhaust of the crane.
10-23-76	Gulf/Sea Drilling Corp.	ST 37 A	On the rig, the crane operator was lowering 20 joints of tubing onto the platform catwalk. Due to rough seas the load was swinging and was not turned in the desired direction. When an employee attempted to turn the load in the right direction, it suddenly swung forward and knocked him down. The crane operator did not see him and lowered the tubing onto him causing fatal injury.
11-13-76	Conoco	WD 70 N	The platform crane was damaged by fire when an unknown gas leak was ignited by the crane's starter bendix.
11-27-76	Conoco/Salen Protexa Drilling Co.	WD 45 A	The rig had been jacked over the platform. The operator of the port crane was swinging the boom when it hit the starboard crane. The impact broke off the load limit switch box cover which fell, striking an employee on the head, fatally injuring him.
01-05-77	Gulf	ST 130 A	Crew was unloading one drum of hydraulic oil and liquid detergent from boat. Eye on manila cargo net parted. Drum fell approximately 25 feet striking man on front of head and right leg causing injury.
01-25-77	Gulf	ST 130 D	A crane was loading a pipe rack onto the the platform. An employee was attempting to move a 55-gallon drum out of way. However, the crane operator did not see him and lowered the rack, smashing the employee's left hand between the rack and the drum causing injury.

CRANE RELATED ACCIDENTS

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
02-10-77	Marathon/ Booker Drilling Co., Inc.	MP 306 E	While attempting to offload derrick, crane-boom cable snapped, dropping derrick approximately 20 feet to platform deck, causing minor damage to platform and derrick, and some damage to crown of derrick. Crane operator noted that load at time of cable failure was 22.5 KLBS at a 45-degree angle while maximum rated load for that angle is 11 KLBS. Although warned of excessive weight, tool pusher instructed crane operator to proceed with lift.
05-11-77	ODECO	ST 86 A	The crane operator was in the process of offloading 4 joints of 4-inch by 20-foot pipe from the motor vessel, when the crane, for no apparent reason, parted at its turntable causing injury to the operator.
06-24-77	Conoco/Rowan Companies, Inc.	WC 222 I	Boom on rigging crane slipped, swung around and struck employee's chest, knocking him off balance. Employee fell approximately 45 feet to the rig floor, causing fatal injury. (He was trying to anchor the boom to the derrick at the top.)
07-14-77	General American	WC 45 A	While attempting to lift some equipment from a boat onto the platform, the crane pedestal gave way. Operator was uninjured and only damage was to crane, which was a total loss.
07-15-77	Gulf	WD 117 C	Employee was attempting to start diesel-powered crane equipped with gas starter. Engine would not start and in the process natural gas was exhausted into confined area. Engine backfired causing flash fire. Employee was burned about face, neck and arms.

CRANE RELATED ACCIDENTS

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
08-27-77	Gulf/Cyclops Drilling Co.	ST 36 B	An employee of the drilling company had his ankle broken when a joint of drill pipe shifted as it was being lifted from the pipe rack by a crane.
12-08-77	Pennzoil/ Mission Drilling Exploration, Inc.	SM 128 A	Personnel had been using the crane and left it unattended with the line and blocks hanging 5 feet 5 inches from the skirt on the heliport. When the helicopter came in to land, it struck the fast line on the crane causing the helicopter to fall into water - 2 injuries and 17 fatalities resulted.
12-11-77	Shell	SM 132 A	Employee was unloading groceries out of a steel grocery box while it was still suspended by a crane. Thinking that the fast line was in a locked position, crane operator momentarily released brake foot control and the box dropped 2-3 feet before he could re-engage the foot brake pedal. Employee's windpipe and upper chest were crushed between handrail and door frame on grocery box resulting in a fatal injury.
03-17-78	Gulf/Pool Offshore Co.	ST 177 B	Crane operator was in the process of lowering the blowout preventers to the deck of the cargo boat. The blowout preventers consisted of an annular and two ram preventers. The approximate weight was 18,000 pounds. When the crane operator stopped the load approximately 6 feet above the deck, the crane broke off at the bearing race. The crane fell into the water with the boom landing on the stern of the boat. The crane operator and one man who was working on the cargo boat were injured.

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
04-08-78	Gulf/Dolphin Titan International Inc.	ST 35 D	An employee was installing a wellhead flange on a well. He was standing on a scaffold board and a 55-gallon drum loaded with bolts was lifted with the air hoist. When the drum cleared the deck, it was swinging and in doing so, the scaffolding slipped and the employee fell from the platform deck to the production deck through a 4-foot by 4-foot hole and was injured.
04-24-78	Conoco/ Pool Offshore Co.	SM 108 G	An employee was fatally injured while loading pipe onboard a motor vessel. According to witnesses, the boat skipper was trying to jockey his boat in position to meet the crane load and the deceased was caught between the boat railing and the load.
05-03-78	Conoco	WC 194 F	An employee suffered first and second degree burns on his hands, arms, and face when the vent gas from the gas powered crane he was operating ignited.
06-28-78	CNG/Pool Offshore Co.	SS 271 B	Personnel were being lifted from a motor vessel up to the platform when the cable strings from the lead line became entangled with the hook and opened the safety latch. The basket fell on another motor vessel. One man was injured while another was fatally injured.
11-19-78	CNG/Reading and Bates Offshore Drilling Co.	SS 247 F	The handrail on the catwalk and end of the pipe rack was knocked off by a 20-inch casing joint which was being picked up in the derrick and tailed by a crane sling causing an employee to fall approximately 25 feet to platform deck causing injury.

CRANE RELATED ACCIDENTS

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
12-10-78	ARCO/CRC Mallard Well Service, Inc.	SP 60 B	One crane was offloading another crane on the rig. The lift crane was holding tension on the boom of the offloading crane to remove the last two bolts in the pedestal The lift crane pedestal parted and the crane fell across the offloading crane. The operator in the lift crane was injured in the accident.
12-18-78	Marathon	EI 57 A	A crane on a platform was lifting a leg on an elevating barge beside the platform for repair. The pedestal bolts failed causing the crane and operator to fall overboard into the water. Operator received broken ribs.
02-04-79	Amoco	EI 273 B	Platform operator was offloading a wireline logging unit onto a boat and the crane broke from platform pedestal. The wireline unit weighed approximately 6,900 pounds. Operator received cut on right thigh.
03-28-79	Texaco	EI 275 A	A 55-gallon oil drum fell from a crane sling severing an acetylene hose and hitting a welder. The acetylene gas was probably ignited from the impact of the drum on the deck. Welder was injured.
04-21-79	Conoco/ Marlin Drilling Co., Inc.	SM 136 B	While removing studs from the casing adaptor spool, the 7 5/8-inch casing had been previously cut and was being picked up when the BOP stack shifted. The injured employee was caught between the bottom of the stack and the platform deck beam. The BOPS were in suspension at the time and were being held in place by the casing until it was removed.

CRANE RELATED ACCIDENTS

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
07-09-79	CNG	HI A-571 A	An employee drowned when the crane ladder he was climbing fell overboard.
07-29-79	Tenneco	VR 217 A	A three compartment, 100-barrel fluid tank for snubbing unit was being off-loaded from a workboat when the crane cratered at the rollers. The cab and boom fell into the water. The crane operator was in the cab and was fatally injured. Approximately 50 barrels of water were in the tank. The angle of the boom was approximately 70 degrees, and the lift to the deck area was successful, but the accident occurred when the crane operator began to swing the load to the landing area on the platform.
10-13-79	Transocean/ Service Equipment and Engineering, Inc.	MI 665	A crane operator had hoisted a pump skid from a barge to the drill deck of the platform. While placing the pump skid to the opposite side of the deck, he extended the crane boom to a distance of 78 feet from the base causing excessive angle weight on the boom. Part of the race connecting the crane to the base broke, dropping cab and crane from pedestal. Base of crane fell on cab crushing it with operator inside, and fatally injuring the operator.
12-19-79	Superior	VR 76 B	A crane operator was picking up transporter (500-gallon fuel tank), approximately 15 feet above top of production deck. He realized at that time, that the load could not clear the compressor on swing cycle. He started booming up. The boom twisted and fell the distance of approximately 10-15 feet (from crane base to compressor) causing minor damage. The approximate weight of transporter full of fuel is 3800-4000 pounds. The rating of the crane was not available.

CRANE RELATED ACCIDENTS

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
06-04-80	Conoco	WD 58 A	An employee was burned while starting a diesel crane engine with ether. The engine backfired, igniting the ether and causing a flash fire.
03-13-81	Gulf	ST 134 S	The main hoist line broke when an employee was lowering the crane boom while raising the main hoist block causing the boom to push down on the main lift block. Another employee, realizing what was about to happen, pushed the first employee out of the way. When the main hoist line broke it struck the second employee on the right shoulder, injuring him.
03-19-81	Conoco	WD 70 L	A portable 10-foot by 32-foot building was being swung over the side of the structure to be placed on a workboat when the stacking frame support beams broke. The building crashed into the side of the workboat, broke into pieces and fell into the Gulf. The structure was destroyed and its contents lost. There were no injuries, platform damage, or pollution.
04-08-81	Exxon/ CRC Mallard Well Service, Inc.	ST 66 D	While picking up two sections of the rig derrick, the crane broke off at the top of the turntable and rolled over the deck injuring the crane operator and one roustabout.
04-21-81	Placid	EI 199 A	An employee's knee was crushed and his ankle broken while being lifted from a boat deck to the platform by a crane. The block hit the boom head sheave assembly, causing the cable to break, allowing the employee and personnel basket to drop 50-60 feet, back onto the boat deck.

CRANE RELATED ACCIDENTS

DATE	OPERATOR/ DRILLING CONTRACTOR	AREA BLOCK PLATFORM	DESCRIPTION
02-11-82	Chevron	ST 63 A	The contract crew was lowering an 8-foot piece of pipe, for the fire pump, down through a 24-inch by 24-inch manhole cover from the top deck to the boat landing. The pipe apparently hung up on pipes beneath the structure. It came loose from the hook and fell about 60 feet, striking two contract employees on the boat landing. The impact from the blow knocked both men overboard, fatally injuring one and seriously injuring the other.
08-02-82	Cities Service	MI 526	A basket was being offloaded from the workboat when a deckhand was caught against the boat rack. The deckhand was hit by the basket, causing fatal injury.
11-03-82	Shell/ ODECO, Inc.	SA 12	The crane operator was lowering six 55-gallon drums containing waste oil when three drums fell from the sling 15 feet to the boat deck hitting a roustabout on the head. The injured man received lacerations of the head and a fracture of the seventh cervical vertebrae. His head required numerous stiches.
04-24-83	Amoco	EC 261 A	In the process of moving the heliport with the platform crane, the crane boom cratered. The boom fell on the diesel line, causing it to rupture, allowing the diesel to be spilled into the Gulf.

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